

Thermal Conductivity and Electrical Resistivity of Copolymers Solutions

M.I. Kenawy and A.Z. Dakroury

Ain Shams University

Cairo, Egypt

The thermal conductivity and electric resistivity of poly (cyclohexene oxide – cyclopentene oxide) and poly (cyclohexene oxide - exo 2,3 epoxy Norborane) solutions were measured in the temperature range 10 - 50° C. Dichloromethane was used as a solvent. The thermal conductivity was measured by the hot-wire technique . The mechanism of heat transfer was discussed. The role of convection and radiation were taken into consideration. The electric resistivity was measured by electrometric method. The measurements were carried out for different concentrations of copolymers in the solutions. The values of the electric resistivity and thermal conductivity showed that the behavior of these properties depend on the temperature, the polymer concentration and the content of exo 2,3 epoxy Norborane in the poly (cyclohexene oxide - exo 2,3 epoxy Norborane) copolymer . The effect of addition of triphenyl amine and the triphenyl phosphine on the properties of these samples are discussed.